REMARKS

Claims 1-33 are pending in this application. Claims 1, 8, 11, 18, 19, 22, 23, 24 and 26 have been amended. Claims 1-29 and 31-33 were rejected under 35 U.S.C. § 102(a) as being allegedly anticipated by U.S. Patent Application No. 2003/0076849 ("Morgan"). Claim 30 was rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Morgan in view of U.S. Patent Application No. 2003/0126223 ("Jenne").

These rejections are respectfully traversed, for reasons including those set forth below and those set forth in prior amendments. Applicants believe that all pending claims are patentable over the art of record.

Rejections Under 35 U.S.C. Section 102(a): Claims 1, 8, 11, 18, 22, 23, 24 and 26

The Office Action indicated that independent claims 1, 11, 22, 23 and 26 were rejected under 35 USC 102(a) as being allegedly anticipated by Morgan. Applicants respectfully disagree but have amended the independent claims to expedite prosecution. For example, claim 1 now recites:

> 1. (Currently amended)   A method of allocating queues in a network device, the method comprising:
> receiving a packet at an ingress port of the network device;
> making a classification for an incoming packet, the classification comprising at least one of an egress port number or an ingress port number;
> determining, by searching a memory of allocated physical queues, whether a previously-allocated queue exists for the classification;
> allocating, at the ingress port, a queue for the classification when no previously-allocated queue exists for the classification;
> storing information relating to the packet in the allocated queue; and
> after the storing step, scheduling the packet for transmission between the ingress port and one of a plurality of egress ports of the network device.

Similar amendments have been made to claims 11, 22 and 26.

Examples of some such memories are described in the Specification as follows:

> The Q numbers are compared to the contents of a *memory 620 of physical queues P implemented in hardware,* such that there is sufficient state storage to allow a separate queue for every packet that the system can store. The memory 620 is preferably a *content addressable memory* ("CAM") but may be any other appropriate memory, e.g., an SRAM. In the implementation illustrated by Fig. 6, memory 620 is a CAM having Q number field 625 and valid bit field 630. Each line of the CAM, then, includes the number of a queue and an indication as to whether or not that queue has been assigned. One advantage of using a CAM for memory 620 is that *its entire contents can be searched in one cycle.*

(Id. at p. 16, lines 5-17 (emphasis added).)

Accordingly, claim 23 has been amended to recite "a content addressable memory. Claim 24 recites that the "content addressable memory is searchable in one clock cycle." Claim 8 has been amended as follows:

> 8. (Currently Amended) The method of claim 1, wherein the determining step comprises addressing [[a]] the memory of allocated physical queues in a single cycle that indicates whether the classification corresponds to a previously allocated queue.

Claim 18 has been amended in a similar fashion. It is respectfully submitted that the art relied upon does not teach, suggest or indicate these features.

Even without the foregoing amendments, Applicants' attorney believes that all claims would be allowable over the art relied upon. Morgan, for example, pertains to a dynamic queue allocation mechanism that classifies packets and stores them in queues. (See Abstract and ¶¶ [0033] and [0036] of Morgan.) Each queue in Morgan apparently is created at a specific *egress* port. During its lifetime, the queue appears to be closely associated with its egress port and may be constrained by the amount of resources available to its egress port.

Para [0037] of Morgan recites:

> In attempting to create a new queue on *a particular egress port*, the queue management module 200 determines whether enough resources are available to the port based on the port information obtained from the port manager 110. If a queue cannot be created because of resource limitation, such as for example, limits on the reserved bandwidth and/or the number of queues that may be created for a particular *egress port*, the queue management module 200 attempts to de-allocate queues of lower priority created on the port.

(Emphasis added.)

Morgan does not teach or suggest several features of claim 1 as previously amended. Morgan, for example, does not teach allocating a queue at an ingress port. Instead, Morgan explicitly teaches that its queues are created at specific egress ports. Additionally, Morgan does not teach or suggest applying an arbitration algorithm or other mechanism to determine which egress port a *queued* packet should belong to. Such an arrangement seems to conflict with the architecture disclosed in Morgan. Since each queue in Morgan is inherently associated with an egress port, any packet in a queue is likewise already associated with the same egress port as the queue itself. Accordingly, Morgan could not teach or suggest allocating a queue at an *ingress* port, storing information relating to the packet in the queue and "after the storing step, scheduling the packet between the ingress port and one of a plurality of egress ports of the network device."

The aforementioned feature may benefit some embodiments of the claimed invention by providing additional flexibility. Queued packets do not have to be tied to a specific egress port. Instead, the scheduling algorithm, using a variety of criteria, may still assign queued packets to one of a plurality of egress ports.

The additional amendments further distinguish the claimed invention from the art relied upon. The amendments to claims 1, 11, 22 and 26 add recitations that are similar to those previously recited in claims 8 and 18. The Office Action rejected these claims as follows:

> Regarding claim 8 and 18, Morgan teaches the determining step comprises
>
> addressing a memory that indicates whether the classification corresponds to a
>
> previously-allocated queue [0034].

The Office Action also rejected the "content addressable memory" recitation of previously presented claim 24 by reference to claim 34 of Morgan. (Office Action at p. 4, lines 1-2.)

These rejections are respectfully traversed. Paragraph 34 of Morgan is set forth below:

> [0034] The classification information is transmitted to the policy engine **106** via an output signal **118**. The policy engine **106** accesses the policy database **120** and selects a policy applicable to the packet. The policy database **120** may be implemented in a local memory and/or in an external LDAP database. The policy database **120** includes a list of policies that are based on the contents of a packet and/or other elements such as, for example, time information, port information, and the like. Policies are rules composed of one or more conditions that describe a packet and one or more actions that define how the packet is to be processed if the condition is satisfied.

It is respectfully submitted that searching through a "list of policies" in Morgan's "policy database 120" is not comparable to "addressing a memory that indicates whether the classification corresponds to a previously-allocated queue," as recited in claim 8 as previously presented. It is certainly not comparable to "determining, by searching a memory of allocated physical queues, whether a previously-allocated queue exists for the classification," as currently recited in claim 1.

Moreover, it seems that the type of memory involved would make little or no difference in implementing the methods described in Morgan: the policy database 120 may be contained in "a local memory or an external LDAP database." Morgan, as understood, does not teach, suggest or indicate a device that includes "a content addressable memory that indicates whether a previously-allocated queue exists for the classification," as now recited in claim 23 and certainly does not indicate that the memory "is searchable in one clock cycle" as now recited in claim 24. Similarly, Morgan does not seem to teach "addressing [[a]] the memory of allocated physical queues in a single cycle," as now recited in claims 8 and 18.

Additional Independent Grounds for Patentability Recited in Dependent Claims

There are numerous other independent grounds for patentability recited in dependent claims. For example, the Office Action noted:

Regarding claim 3 and 13, Morgan teaches the queue is a virtual output queue [0053].

The same paragraph of Morgan was used in the Office Action's rejection of claims 10, 20 and 21:

Regarding claim 10, 20 and 21, Morgan teaches the network device further comprises a free list that indicates queues available for allocation and wherein the method further comprises updating the free list when the previously-allocated queue is de-allocated [0053].

These rejections are respectfully traversed. Paragraph 53 of Morgan is set forth below:

> **[0053]** The port status tracking module **220** monitors the status of one or more ports according to conventional mechanisms. For example, the port status tracking module monitors the addition or deletion of physical or virtual ports, their condition as either up or down, and their QoS settings. The resource management module **222** tracks the available resources reserved for each port as queues are created and released. The resource management module **222** may also track global resources available to the entire switching node. One of the resources tracked for a particular queue is the reserved bandwidth. Updates are made the port table **224** based on the information provided by the port status tracking module **220** and the resource management module **222**.

Although there is a reference to virtual ports, there seems to be no mention of virtual output queues as recited in claims 3 and 13. Similarly, there seems to be no indication of "a free list that indicates queues available for allocation and wherein the method further comprises updating the free list when the previously-allocated queue is de-allocated" as recited in claim 10 or the similar recitations of claims 20 and 21.

CONCLUSION

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

The Commissioner is hereby authorized to charge any additional fees, including any extension fees, which may be required or credit any overpayment directly to the account of the undersigned, Deposit Account 50-4480 (Order No. ANDIP035).

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Respectfully submitted,
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